NON-PUBLIC?: N
ACCESSION #: 8803070255

LICENSEE EVENT REPORT (LER)

FACILITY NAME: RIVER BEND STATION PAGE: 1 of 4

DOCKET NUMBER: 05000458

TITLE: Main Turbine Runback/Reactor Scram caused by Loss of Main Generator Stator Cooling due to Failed Temperature Controller
EVENT DATE: 01/28/88 LER #: 88-003-00 REPORT DATE: 02/26/88

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Rick King - Supervisor-Nuclear Licensing TELEPHONE #: 504-381-4146

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At 1612 on 1/28/88 with the unit in power operation (mode 1) at 100 percent power, vibration induced failure of a temperature controller in the main generator stator cooling system caused a main turbine runback. The turbine shed its load faster than reactor power could be decreased causing an increase in reactor pressure. At 1615 the reactor scrammed on high pressure. All systems responded properly during the transient with the exception of the 'B' reactor recirc pump which tripped off from high speed instead of shifting to low speed. The stator temperature controller was repaired and relocated to a building structural member to protect it from vibration. There was no adverse impact on the health and safety of the public as a result of this event.

(End of Abstract)

TEXT: PAGE: 2 of 4

REPORTED CONDITION

At 1612 on 1/28/88 with the unit in power operation (mode 1) at 100% power, a main turbine runback occurred. An operator was dispatched to investigate while control room operators reduced reactor power in an

attempt to keep up with the rate of reduction of turbine load. During a turbine runback, the main turbine load set motor automatically reduces turbine load at a specified rate. The circuit then checks to see if turbine load is less than 80 percent in 2 minutes and less than 24.5 percent in 3.5 minutes. If load has not been reduced to within these limits, the main turbine trips. Due to limited turbine bypass valve capacity (10 percent), it is improbable that 24.5 percent turbine load can be reached in 3.5 minutes from 100 percent power.

During this transient, the turbine runback circuit reduced turbine load faster than reactor power could be reduced. As reactor pressure increased, the main turbine bypass valves opened fully. Reactor power was still greater than steam flow, and at 1615 the reactor pressure reached the scram setpoint of 1064.7 psig causing a full reactor scram.

During the level transient which followed, the reactor recirculation pumps received a signal to shift from high speed to low speed (this is normal for a scram from high power); however, instead of shifting to low speed, the 'B' reactor recirculation pump tripped off. Recirculation pump shift problems have been addressed in LER-87-012, Rev. 1.

The main turbine unloaded rapidly as reactor pressure dropped due to the scram, and was subsequently tripped. Turbine bypass valves also closed due to the decreasing pressure. The plant was placed in a stable configuration in accordance with approved procedures.

INVESTIGATION

The operator dispatched to investigate found that the stator cooling (*TJ*) temperature control valve had failed to a position of no cooling. In this position all flow bypasses the stator cooling heat exchangers. The operator noted that this was the position being demanded by the associated temperature controller. Instrumentation and Controls (I&C) personnel investigated and determined the skid mounted controller had suffered internal damage due to the vibration encountered on the skid. A small linkage had worn at its connection points and had eventually shaken loose, causing the controller to demand the temperature control valve to go to the full bypass position. Other than this, the turbine and its auxiliary systems operated properly.

A review of previously submitted LERs from River Bend Station revealed that two reactor scrams in 1986 were attributed to main generator

stator cooling problems. LER 86-037 reported a turbine runback and reactor scram when the temperature setpoint for high stator water cooling temperature had drifted low; no actual high temperature existed. LER 86-069 reported a turbine runback and reactor scram when a valve positioner failed due to dust and dirt partially blocking the valve positioner nozzle.

ROOT CAUSE

The root cause of the turbine runback was vibration induced failure of the temperature controller. The controller was exposed to vibration due to being mounted on the stator cooling skid.

CORRECTIVE ACTION

The damaged stator cooling temperature controller was repaired under a prompt Maintenance Work Order (MWO). In addition, the following changes were made:

. The temperature controller was moved off the skid and onto a building structural member to protect it from vibration.

. The stator cooling water high temperature alarm setpoint was lowered to allow the operators more time to react to a problem.

. A mechanical stop was installed on the temperature control valve such that it can not go to a position of less than 40 percent cooling, or more than 60 percent bypass. Changes to the system and plant operating procedures were made to accommodate this change during low/no generator load conditions when minimal stator cooling is required.

. The stator cooling high temperature runback temperature switch was moved off the skid to a building structural member to protect it from vibration.

SAFETY IMPACT

The turbine runback circuit is designed to protect the main generator from damage due to a failure of the stator cooling system. The runback did not threaten the safety related portions of the plant since the high pressure scram stopped the pressure rise before any relief valve setpoints were reached.

No safety related systems or functions failed to operate properly, and the health and safety of the public were not impacted as a result of this event.

NOTE: Energy Industry Identification Codes are identified in the text as (*XX*).

GULF STATES UTILITIES COMPANY

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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1
Docket No. 50-458

Please find enclosed Licensee Event Report No. 88-003 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

J. E. Booker
Manager-River Bend Oversight
River Bend Nuclear Group

JEB/TFP/DRD/RRS/ch

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